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## The Crataegi of Mexico and Central America

W. W. EGGLESTON

In the autumn of 1905, Dr. C. G. Pringle sent me, from Mexico, fruiting material of what he considered a new species of *Crataegus*. Study of the literature of both the Mexican and the South American species satisfied me that he was correct in his diagnosis ; but I asked him to get me flowering material from the same station. This he did in April, 1906, and *Crataegus Baroussana* was then described (Torreya 7: 35). Since then I have seen specimens of this species, *J. Gregg* 433, "mountains near Saltillo, 1848 or 49," both in the herbarium of the Missouri Botanical Garden and in the Gray Herbarium. Dr. Pringle tells me that his *C. Baroussana* ravine overlooks the battlefield of Buena Vista and therefore his station might be Dr. Gregg's as well.

The study required for this species led me to a more extensive investigation of this group as it is represented south of the Mexican boundary. I had trouble in finding important literature ; many of the types were in Europe ; and all of the South American species were inaccessible to me. The literature has now all been secured and a good idea of most of the types obtained, but to find material of the South American species has been a harder proposition. There is but one sheet of a South American *Crataegus* in the great herbaria of the United States. This is a flowering specimen of *C. spinosa* DC. in the herbarium of the New York Botanical Garden.

Happily, most of the South American species can easily be eliminated from the problem by their descriptions. *C. stipulosa* (H.B.K.) Steud. and *C. quitensis* Benth. were the only ones that troubled me, and a flowering specimen (from the type locality) of *C. stipulosa* and a drawing of the type of Bentham's *C. quitensis* were very kindly sent me by Lt. Col. Prain, Director of the Royal Botanic Gardens, Kew.

Dr. C. G. Pringle and Dr. Edward Palmer have made special

trips in Mexico for me; and Dr. J. N. Rose, Mr. J. N. Painter, and Mr. W. R. Maxon, of the U. S. National Museum, and Mr. E. W. Nelson and Mr. E. A. Goldman of the U. S. Biological Survey have also given me information in regard to the Mexican species. In fact, without the recent work of these gentlemen in Mexico our knowledge would be very limited indeed. I have also had full access to the material in the Gray Herbarium, the National Museum, the Missouri Botanical Garden, and the Arnold Arboretum.

The first notice we have of *Crataegus* in Mexico was by Dr. F. Hernandez who resided in Mexico from about 1570 to 1580. His *Nova Plantarum, Animalium et Mineralium Mexicanorum Historia* was published at Rome in 1651, and his *De Historia Plantarum Novae Hispaniae* at Madrid in 1790.

The first definite work on the group was that of Mocino & Sessé (about the City of Mexico), but this work was not given to the world until De Candolle published the *Pomaceae* of his *Prodomus* in 1825. Baron von Humboldt found the rare *C. pubescens* (H.B.K.) Steud. in Real de Moran, Hidalgo, and published it in 1824. It seems remarkable that he should have picked up this rare and little-known species and not have observed the more common *C. mexicana* Moc. & Sessé. Around these two species and that of Bonpland's *C. stipulosa* (H.B.K.) Steud. from Ecuador, there has been a storm center ever since. One will find herbarium sheets about equally marked with these names, when as a matter of fact most of them are *C. mexicana* Moc. & Sessé.

Although the type of *Crataegus mexicana* Moc. & Sessé has not been seen, it is easy to settle the status of the species, for it was collected in the vicinity of the City of Mexico and the tracing of Mocino & Sessé's drawing is extant; this, with the fact that only one species is known near the City of Mexico seems to settle the status of *C. mexicana*. *C. stipulosa* (H.B.K.) Steud., as to description, matches very well with *C. mexicana*, but the flowering material sent from Kew seems different, and until *C. stipulosa* is well known it is better to hold to the name *C. mexicana*, although they may prove to be one species, in which case, *C. stipulosa*, being the older name, will replace the other. *C. pubescens* (H.B.K.) Steud. has been another stumbling-block. It was collected in

flower by Humboldt and is finely described and figured by Kunth in the *Nova Genera et Species*; but flowering material of closely allied species of *Crataegi* furnishes very unsatisfactory data for determination and should be reinforced by mature fruiting material whenever possible. Dr. Rose's Jalapa plant supplied immature fruiting material for me; and last fall, Dr. Pringle collected mature fruit at Honey Station, Hidalgo (this station is within a mile or two, at least, of Humboldt's locality, Real de Moran).

My purpose in this article is to describe the wild species of Mexico and Central America but my final treatment of the group will require also a good deal of notice given to the different forms raised in and described from the various European botanical gardens. I have no evidence that either *C. pubescens* or *C. stipulosa* has ever been cultivated in botanical gardens but in the early thirties *C. mexicana* (*C. stipulacea* Lodd.) was of much interest to the English gardeners and there was some controversy at the time in regard to when and by whom it was introduced. The evidence seems to point to the fact that it must have been received in England from two sources in 1824 or a few years before that (see Gard. Mag. 9: 496, 630; 11: 473, 583. — G. Don, Gen. Dict. 2: 598. — D. Don, in Sweet, Brit. Flow. Gard. 6: 300). From England it was introduced to the continent. It does not seem to have been raised in the United States, although it might easily be grown from Washington or St. Louis south. Of the garden species *C. lobata* Bosc, *C. grandiflora* Smith, *C. Carrierei* × *Carrière*, *C. Lavalleyi* Hérincq, and *C. grignoniensis* Mouillefert, I have seen fresh fruiting material of only *C. Lavalleyi*; this was sent me last fall from Segrez, France, by Mr. Lavallée and might well be a hybrid between *C. mexicana* and *C. Crus-galli*, as it has been called. The colored plates of this and *C. Carrierei* are much alike and seem to me to represent practically the same form. *C. grandiflora* Smith and *C. lobata* Bosc may be Mexican species or at least partially derived from them, but these are doubtful points, needing more careful investigation. However, I have not sufficient knowledge of these species as yet, having but recently seen some of the important literature on the subject.

The genus *Crataegus*, south of the United States, seems confined to the tablelands of Mexico and southward through the

highlands of the Andes. In Mexico the fruit is of much economic importance, being often found in the markets, and the trees are guarded as carefully as other fruit trees are with us.

#### Key to Mexican and Central American Crataegi in flower

1. Vegetative twigs, corymbs, and lower surface of leaves glabrous;  
leaves broadly ovate; stamens about 10; styles 4 or 5, calyx-lobes  
serrate; fruit red..... *C. Baroussana*.
1. Vegetative twigs, lower surface of leaves, and corymbs tomentose... 2.
  2. Leaves broadly ovate, tomentose on both sides; stamens  
about 10; styles 4 or 5; calyx-lobes serrate; fruit red..... *C. Greggiana*.
  2. Leaves narrower, — elliptical, lanceolate, etc..... 3.
    3. Stamens 5–10; styles 3 or 4; calyx-lobes serrate; fruit  
red ..... *C. Rosei*.
    3. Stamens about 20..... 4.
      4. Calyx-lobes serrate, styles usually 2 or 3; fruit yellow. *C. pubescens*.
      4. Calyx-lobes entire..... 5.
        5. Leaves oblanceolate..... *C. stipulosa*.
        5. Leaves lanceolate, elliptical, etc. .... 6.
          6. Styles 2–3; leaves glabrous above; fruit  
yellow..... *C. Parryana*.
          6. Styles 3–5, leaves tomentose above..... 7.
            7. Leaves 3–9 cm. long, styles usually 3  
or 4; fruit orange..... *C. mexicana*.
            7. Leaves 1.5–5 cm. long; styles usually  
4 or 5..... *C. Nelsoni*.

#### Key to Mexican and Central American Crataegi in fruit

- I. Vegetative twigs glabrous..... *C. Baroussana*
- I. Vegetative twigs tomentose..... 2.
  2. Leaves broadly ovate..... *C. Greggiana*.
  2. Leaves elliptical, etc. .... 3.
    3. Fruit large, 15–30 mm. thick..... 4.
    3. Fruit small, 8–15 mm. thick..... 5.
      4. Leaves oblanceolate..... *C. stipulosa*.
      4. Leaves lanceolate, etc..... 6.
        6. Nutlets 3–5; calyx-lobes erect, entire; fruit  
orange ..... *C. mexicana*.
        6. Nutlets 2 or 3; calyx-lobes reflexed, glandular-  
serrate; fruit light yellow..... *C. pubescens*.
        5. Nutlets 2 or 3; fruit yellow; calyx-lobes  
entire ..... *C. Parryana*.
        5. Nutlets 3 or 4; fruit red; calyx-lobes  
serrate..... *C. Rosei*.
        5. Nutlets 4 or 5; calyx-lobes entire ..... *C. Nelsoni*.

CRATAEGUS PUBESCENS (H.B.K.) Steud. Nom. Bot. 433.

1841 [ed. 2]

*Mespilus pubescens* H.B.K. Nov. Gen. et Sp. 6: 213. *pl.* 565.  
1824.

Leaves 1–7.5 cm. long, 0.8–4 cm. wide, rhomboid-elliptical to ovate or sometimes obovate or spatulate, often one-sided towards the base, serrate or crenate-serrate, often doubly so, with gland-tipped teeth, leaves of the vegetative shoots often three-lobed towards the apex and extremely variable as to size, acute at the apex, cuneate at base, subcoriaceous, slightly appressed-pubescent and impressed-veined above when young, bright green becoming nearly glabrous above when mature, paler and tomentose below; petioles 2–10 mm. long, slightly winged and pubescent; stipules falcate to half-ovate, strongly glandular-serrate, fugacious; corymbs 6–10-flowered, tomentose, flowers 10–12 mm. wide, the lanceolate acute strongly glandular-serrate calyx-lobes nearly glabrous; stamens about 20; styles usually 2 or 3, occasionally 4; fruit compressed-globose to globose, light straw-colored (according to Pringle), 15–25 mm. thick; calyx-lobes reflexed, mostly deciduous; flesh light yellow; nutlets 2–4, strongly ridged on the back, 8–10 mm. long, nest of nutlets 10–12 mm. thick. Young twigs slightly tomentose becoming glabrous, light chestnut-brown. Thorns 1–3 cm. long, slender, straight, frequent. Habit of the common apple tree, sometimes 10 m. high.

This species has been infrequently found in the moister region (1000–3000 m.) of the eastern border of the tableland, ranging from Hidalgo southwards.

Type locality, Real de Moran, State of Hidalgo (2420 m.), *Humboldt*.

Specimens examined:

Jalapa, Vera Cruz, *C. J. W. Schiede*, 1828. (Herb. Columbia Univ. and Gray Herb.)

Jalapa, *C. L. Smith* 1484, Apr. 11, 1894, 6900 ft. (Gray Herb.)

Jalapa, *C. G. Pringle* 8081, Mar. 30, 1899.

Jalapa, *J. N. Rose & W. Hough* 4250, May 17–22, 1899. (Herb. U. S. Nat. Museum and herb. N. Y. Bot. Gard.)

Honey Station, Hidalgo, *C. G. Pringle*, Oct. 22, 1908. (Herb. N. Y. Bot. Gard.)

The next number probably belongs to this species:

*E. W. Nelson 1334*, eighteen miles southwest of city of Oaxaca, Sept. 10-20, 1897. (Gray Herb. and herb. U. S. Nat. Mus.)

***Crataegus pubescens Botterii* var. nov.**

Leaves shorter than those of the type, tomentose above, more rugose than in the type, densely white-tomentose ; corymbs densely white-tomentose.

This may prove a distinct species when better known.

Type : *Botteri 1121*. (Gray Herb.)

Specimens examined :

Orizaba, *Botteri 1121*, about 1850. (Herb. U. S. Nat. Mus. and Gray Herb.)

Huatasco, Vera Cruz, *C. Mohr*, 1856. (Mohr Herb., U. S. Nat. Mus.)

Eugenio, Rincón de la Carbonera, Orizaba, *F. Müller*, 1853. (Herb. Columbia Univ.)

Boca del Monte, Orizaba, *E. W. Nelson 218*, May 13, 1894. (Herb. U. S. Nat. Mus.)

CRATAEGUS MEXICANA Moc. & Sessé ; DC. Prod. 2 : 629. 1825. —

Moc. & Sessé, Dessins Fl. Mex. *pl. 299*. 1874. — Bot. Reg.

22 : *pl. 1910*. 1836. — Loudon, Arb. et Frut. Brit. 2 : 843, 867 ; 6 : 156. 1838. — D. Don in Sweet, Brit. Flow. Gard.

6 : *pl. 300*. 1835

*C. subserrata* Benth. Plantae Hartweg. 10. 1839.

*C. hypolasia* K. Koch, Hort. Dend. 167. 1853.

Leaves elliptical-lanceolate or oblanceolate, 3-9 cm. long, 1.5-4 cm. wide, serrate-crenate, with gland-tipped teeth, sometimes slightly lobed towards the apex, often irregularly so or the margin repand, entire towards the base, obtuse or acute at the apex, cuneate at the base, dull, coriaceous, tomentose above, sometimes becoming nearly glabrous, impressed-veined and slightly corrugated ; tomentose below, particularly along the veins ; petioles 5-10 mm. long, slightly winged, tomentose ; corymbs 4-10-flowered, densely white-tomentose ; flowers 15-20 mm. wide ; calyx-lobes less tomentose, about 6 mm. long, lanceolate, entire except at the apex, which is usually obtuse and often has two to four nearly equal gland-tipped teeth ; stamens about 20, anthers pink, styles 3-5, densely tomentose about the base ; fruit ovoid, short-ellipsoidal or short-pyriform, 15-25 mm. thick, edible, orange or rusty orange, calyx-lobes erect, thickened at the base ;

nutlets 3-5, broadly ridged on the back, obtuse at the ends, 8-10 mm. long, nest of nutlets 10-12 mm. thick. A small tree sometimes 10 m. high, resembling the common apple tree in habit. Young twigs tomentose. Thorns often wanting or trees occasionally armed with short thorns.

A tree of the higher altitudes (1000-3000 m.) of the central tableland, ranging from central Mexico (San Luis Potosi, *Parry & Palmer 228*) southward.

Type station, vicinity of the City of Mexico, *Mocino & Sessé*.

Specimens examined:

*C. G. Pringle 13736*, Eslava, Federal District, Mexico, 7800 feet, Mar. 22, 1906. Tree 15-25 feet. Also fruit from this station, Nov. 7, 1907. (Herb. N. Y. Bot. Gard.)

*C. G. Pringle 6547*, base of Sierra de Ajusco, Federal District, Mexico, 7800 feet, Sept. 29, 1896.

*C. G. Pringle 6631*, river banks near Tula, Hidalgo, 6800 feet, June 15, 1897.

*C. G. Pringle 6983*, fields about Tepoxtlán, Morelos, Mexico, 7500 feet, Mar. 15, 1899. A large tree.

*C. G. Pringle 11400*, Eslava, State of Mexico, 8000 feet, Sept. 17, 1903.

*C. G. Pringle 1467*, Marquess, State of Mexico, 8000 feet, Apr. 20, 1887.

*J. Gregg 618* and *618b*, valley and hills below Real del Monte, Mexico, 1848-49.

*Graham*, Mexico. (Gray Herb.)

Herb. de la Commission Scientifique du Mexique 50. Santa Fé près México.

J. G. Schaffner Herb. San Luis Potosi, May, 1881. (Gray Herb.)

*Parry & Palmer 228*, San Luis Potosi, 1878.

*E. Palmer*, San Luis Potosi mountains, 1878.

*Rose & Painter 7118*, Eslava, Valley of Mexico, Sept. 17, 1903.

*Rose & Painter 7894*, Nevada de Toluca, State of Mexico, Oct. 15, 1903.

*Rose, Painter, & Rose 9483* and *9484*, San Angel, Valley of Mexico, Aug. 15, 1905.

*Rose & Hough 4532*, near Tlalpam, Valley of Mexico, June 9, 1899.



*Rose & Hough 4710*, between Tepeaca and Santa Rosa, Pueblo, Mexico, June 27, 1899.

*Rose & Hay 5293*, near Dublan, Hidalgo, Mexico, July 2, 1901.

*W. Trelease 40*, above Malhalla, Vera Cruz, Mexico, Feb. 19, 1905.

*C. subserrata* Benth., *Hartweg 47*, Mexico, as seen in the Gray Herbarium, seems to represent a rather entire-leaved form of *C. mexicana*, which, as to the Gray Herbarium specimen, is not worthy of even a varietal name.

***Crataegus mexicana microsperma* var. nov.**

*C. pubescens* Watson, Proc. Am. Acad. **22**: 396. 1887. Not *Mespilus pubescens* H. B. K.

Leaves narrower than those of the type ; fruit pyriform, yellow, with red cheeks, 10–15 mm. thick ; nutlets 3–5, about 6 mm. long, grooved on the back, with calyx-scar, nest of nutlets 7–8 mm. thick.

This may prove a good species.

Type, *E. Palmer 465*, Guadalajara, Jalisco, Mexico, Sept., 1886.

The following numbers also I would refer here :

*E. W. Nelson 553*, west slope of Mt. Zempoaltepec, Oaxaca, Mexico, 7700–8000 feet, July 5–13, 1894.

*E. W. Nelson 4092*, roadside between San Sebastian and the summit of the mountain known as the Bufa de Mascote, Jalisco, Mexico, 7200 feet, Mar. 20, 1897.

*M. E. Jones 136*, Chiquilistlan, Jalisco, Mexico, June 1, 1892.

I doubtfully refer the following numbers to this variety :

*E. W. Nelson 6555*, Patamban, Michoacan, Mexico, 6500–8500 feet, Jan. 27, 28, 1903.

*E. Langlassé 45*, Village du Durarno, Michoacan et Guerrero, Mexico, Mar. 20, 1899.

Of no. 465 Dr. Palmer says, "Twenty feet high ; fruit yellow with black dots, and often a red blush on one side, Guadalajara ; September (465). *Tejocote*, a jelly, is made from the fruit, resembling that from the quince."

CRATAEGUS STIPULOSA (H.B.K.) Steud. Nom. Bot. 433. 1841  
[ed. 2]

*Mespilus stipulosa* H.B.K. Nov. Gen. et Sp. **6**: 213. 1824.

Material from Gautemala matches this species better than any other I have seen. The leaves are oblong or obovate-oblong,

tomentose, acute at the apex, cuneate at the base, crenate-serrate, tomentose; corymbs densely white-tomentose, few-flowered; stamens about 20; fruit globose or short-pyriform, (yellow?), 15-30 mm. thick, calyx deciduous; nutlets 2-4.

Specimens examined:

*J. D. Smith 2531*, Las Delicias, Depart. Sacatepéquez, Guatemala, 7000 feet, Mar. 1892.

*Heyde & Lux 3324*, Santa Rosa, Depart. Santa Rosa, Guatemala, 4000 feet, Apr. 1892.

*W. A. Kellerman 7071*, Volcano Agua, Depart. Sacatepéquez, Guatemala, 9000 feet, Feb. 4, 1908.

*W. A. Kellerman 4529*, Volcano Agua, Guatemala, Feb. 18, 1905.

*Maxon & Hay 3668*, Volcano Agua, Guatemala, 1800 m., Mar. 21, 1905.

*W. R. Maxon*, fruit bought in the market of Mazatenango, Guatemala, Feb. 1905.

The following I would refer to this species with some doubt:

*E. W. Nelson 3162*, near San Cristobal, Chiapas, Mexico, 7000-8800 feet, Sept. 18, 1895.

*E. A. Goldman 941*, Teopisca, Chiapas, Mexico, May 7, 1894.

### ***Crataegus Rosei* sp. nov.**

Leaves short-spatulate to obovate, obtuse at the apex, cuneate at the base, serrate-crenate with fine teeth, slightly pubescent along the veins, finely rugose, shining, yellow-green above, paler and tomentose along the veins below; petioles 5-10 mm. long, slightly winged, pubescent, stipules of the vegetative twigs semi-lunate, 3-4 mm. long, glandular-serrate; corymbs 3-9-flowered, whitish-villose; flowers 12-15 mm. wide, calyx and lobes slightly villose, calyx-lobes remotely serrate or entire, lanceolate, acute, 2-3 mm. long; stamens 5-10; styles 2-4, surrounded at the base by a dense tuft of tomentum; fruit ellipsoidal or pyriform, red, 8-12 mm. thick, slightly villose, flesh soft, calyx-lobes reflexed or spreading, nutlets usually 3, strongly ridged on the back, 6-7 mm. long, nest of nutlets 8-9 mm. thick. Vegetative twigs villose, yellow-green, becoming glabrous and ash-gray, armed with chestnut-brown, slightly curved spines 2-4 cm. long.

Type *E. Palmer 74*, Alvarez, San Luis Potosi, Mexico, Sept. 5-10, 1902. (Herb. N. Y. Bot. Gard.).

Of no. 74 Dr. Palmer says, "*Tejocote colorado*. The fruits are

sold in San Luis Potosi for making *cayata*. A small tree ; 15 feet may cover the height of the tallest. It has the habit of the hawthorn with an immense crop of fruit which is eaten raw by the people."

Of no. 47, "Small tree like the hawthorn of the United States, very thorny ; the fruits are edible, very productive ; of the general height of 10-15 feet, very bushy, known as *Tejocote* ; the fruit hangs on the tree a long time."

Of no. 229, "*Tejocote*, one of the most useful trees found here, has a thick compact top of dark green leaves that have a fine polish, thus enabling it to stand dryness, is loaded with fruit. The wood is white, tough and durable, used for handles of tools ; the fruits are of a red color, are eaten raw and made into preserves and jelly. Height 20-30 feet and diameter 6-15 inches, flowers white and sweet-scented, found in secluded nooks in ravines or by mountains near water-courses."

Specimens examined :

*E. Palmer* 74. (Herb. N. Y. Bot. Gard., Gray Herb., herb. U. S. Nat. Mus. and herb. Arn. Arbor.)

*E. Palmer* 47, Santiago Papasquiario, Durango, Mexico, Apr., 1896. (Herb. N. Y. Bot. Gard., Gray Herb., herb. U. S. Nat. Mus., herb. Arn. Arbor.)

*E. Palmer* 229, Tobar, Durango, Mexico, May 28-31, 1909. (Herb. N. Y. Bot. Gard. and herb. U. S. Nat. Mus.)

*E. Palmer* 333, vicinity of Chihuahua, Mexico, June 5-10, 1908. (Herb. U. S. Nat. Mus. and herb. N. Y. Bot. Gard.)

*E. W. Nelson* 4673, Papasquiario, Durango, Mexico, Aug. 7, 1898. (Herb. U. S. Nat. Mus.)

This species of the interior plateau seems to take the place of *C. mexicana* in northern Mexico. It will be surprising if it is not found in southern New Mexico and Arizona.

***Crataegus Parryana* sp. nov.**

Leaves 1.5-4 cm. long, 1-3 cm. wide, oblong-rhomboidal to elliptical-ovate, serrate nearly to the base, sometimes doubly serrate, with gland-tipped teeth, coriaceous, bright yellow-green, glabrous, rugose, impressed-veined above, paler and strongly tomentose along the midrib below, acute at the apex, cuneate at the base ; petioles 2-5 mm. long, slightly pubescent ; corymbs few-flowered

(2-4-fruited), pedicels slightly whitish tomentose; fruit yellow, compressed-globose, 12-18 mm. thick, slightly pubescent; calyx-lobes appressed, lanceolate, acute, slightly tomentose; stamens about 20, tomentose about the base; nutlets 2 or 3, obtuse, strongly ridged on the back, 7-9 mm. long, nest of nutlets 8-10 mm. thick. Young twigs light chestnut-brown, slightly pubescent, becoming gray and glabrous. Thorns numerous, at first chestnut-brown, 2-4.5 cm. long, nearly straight. In habit like the apple or the hawthorn.

Type, *E. Palmer* 75, Alvarez, San Luis Potosi, Mexico, Sept. 5-10, 1902. (Herb. U. S. Nat. Mus.)

Of this number Dr. Palmer says. "*Tejocote ameco*. The fruit of this form is sometimes a little larger than no. 74 [*C. Rosei*], and if it can be a larger crop of fruit. Has a fine odor. A small tree; 15 feet may cover the height of the tallest. It has the habit of the hawthorn. Quite thorny. May not the cultivated yellow ones of San Luis Potosi originate here?" He also told me that the locality where he found this species and no. 74, in the mountains about twenty miles southeast of the city of San Luis Potosi, had the greatest number of individual trees of any place he had seen, and was also the only place that he would be sure that *Crataegus* was wild in Mexico.

Dr. Pringle, however, says that although *Crataegus* is frequently cultivated in the Mexican gardens, still a great many of the seemingly cultivated trees are undoubtedly in their native habitats.

#### ***Crataegus Greggiana* sp. nov.**

*C. pubescens* Watson, Proc. Am. Acad. 17: 354. 1882. Not *Mespilus pubescens* H.B.K.

Leaves 2-7.5 cm. long, 2-6 cm. wide, broadly ovate to elliptical-ovate, tomentose on both sides, becoming scabrous above, finely and doubly serrate, or lobed towards the apex, with often irregular lobes, acute or obtuse at the apex, broadly cuneate at the base, subcoriaceous, dull; petioles 5 mm. long, tomentose; corymbs 4-8-flowered, corymbs and calyx densely white-tomentose, calyx-lobes lanceolate, acuminate, remotely and irregularly serrate, about 6 mm. long; stamens about 10; styles 3-5; fruit brick-red, about 10-12 mm. thick, globose, tomentose; calyx-lobes appressed, persistent; nutlets usually 4 or 5, grooved on the back, with a conspicuous calyx-scar, 6-7 mm. long, nest of nutlets 7-9 mm. thick. Twigs tomentose, becoming glabrous. Thorns numerous, straight, slender, chestnut-brown, 3-6 cm. long.

Type, *E. Palmer* 300, Saltillo, Coahuila, Mexico, Sept., 1898. (Gray Herb.)

Description of flowers drawn from *E. Palmer* 2123, Mts. 6 miles east of Saltillo, Apr. 15-20, 1880. (Gray Herb.)

"Garden spots, low hills and little hollows between hills, common. No. 300, hawthorn, prolific bearer of brick-red fruit, edible, sold in the market; the pulp has an apple taste; 15-20 feet high, symmetrical top, rough bark, many long thorns, six inches to one foot in diameter, the seeds are taken out of the top of the fruit, which is cooked in sugar and forms a fine preserve."

Specimens examined:

*E. Palmer* 300. (Gray Herb., herb. N. Y. Bot. Gard., herb. U. S. Nat. Mus., and herb. Arn. Arbor.)

*E. Palmer* 704, Saltillo, July 28, 1905. (Herb. N. Y. Bot. Gard. and herb. U. S. Nat. Mus.)

*E. W. Nelson* 6729, General Cépida, Coahuila, Mexico, Apr. 20, 1902. (Herb. U. S. Nat. Mus.)

#### ***Crataegus Nelsoni* sp. nov.**

Leaves 1.5-5 cm. long, 1.5-4 cm. wide, elliptical-ovate to obovate, acute at the apex, cuneate at the base, serrate or doubly serrate, somewhat tomentose below, finely rugose and slightly pubescent above, subcoriaceous; petioles less than 5 mm. long, slightly pubescent; corymbs 3- or 4-fruited, pedicels slightly pubescent; fruit globose, 10-15 mm. thick, slightly pubescent, stamens about 20, calyx-lobes persistent and appressed, entire, slightly pubescent; nutlets 4 or 5, grooved on the back, 7-9 mm. long, nest of nutlets 9-11 mm. thick. Vegetative twigs somewhat pubescent. Thorns very numerous, 3-5 cm. long.

Type, *E. W. Nelson* 3217, near San Cristobal, Chiapas, Mexico, alt. 7000-8800 feet, Sept. 19, 1895. (Herb. U. S. Nat. Mus.)

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